

II The Problem of Curriculum Load

1. Preamble

Our Committee was concerned with one major flaw of our system of education. This flaw can be identified briefly by saying that "a lot is taught, but little is learnt or understood". The problem manifests itself in a variety of ways. The most common and striking manifestation is the size of the school bag that children can be seen carrying from home to school and back to home everyday. A survey conducted in Delhi revealed that the weight of school bag, on an average, in primary classes in public schools is more than 4 kg while it is around 1 kg in MCD schools. Nevertheless the load we want to discuss is not only the physical load but the load of learning which is there for all children irrespective of the category or type of schools where they study. Eminent writer R. K. Narayan had drawn the country's attention to this daily sight by making a moving speech in the Rajya Sabha a few years ago. The situation has become worse over these years, with even pre-school children carrying a bag of books and notebooks. And the sight is not confined to metropolitan cities alone; it can be seen in small towns and the bigger villages too.

The weight of the school bag represents one dimension of the problem; another dimension can be seen in the child's daily routine. Right from early childhood, many children specially those belonging to middle classes, are made to slog through home work, tuitions and coaching classes of different kinds. Leisure has become a highly scarce commodity in the child's, especially the urban child's life. The child's innate nature and capacities have no opportunity to find expression in a daily routine which permits no time to play, to enjoy simple pleasures, and to explore the world.

2. Joyless Learning

It is hard to reconcile the rigorous 'academic' regime that is imposed on children from an early age with the widespread complaint made about the declining norms and performance of the formal system of education. Teachers routinely complain that they do not have enough time to explain anything in detail, or to organise activities in the classroom. 'Covering' the syllabus seems to have become an end in itself, unrelated to the philosophical and social aims of education. The manner in which the syllabus is 'covered' in the average classroom is by means of reading the prescribed textbook aloud, with occasional noting of salient points on the blackboard. Opportunities for children to carry out experiments, excursions, or any kind of observations are scarce even in the best of schools. In the average school, especially the school located in a rural area, even routine teaching of the kind described above does not take place in many cases. In several states, school teachers encourage children to attend after-school tuition given for a fee while regular classroom teaching has become a tenuous ritual.

One message of this situation is that both the teacher and the child have lost the sense of joy in being involved in an educational process. Teaching and learning have both become a chore for a great number of teachers and children. Barring those

studying in reputed or exceptional institutions, the majority of our school-going children are made to view learning at school as a boring, even unpleasant and bitter experience. They are daily socialised to look upon education as mainly a process of preparing for examinations. No other motivation seems to have any legitimacy.

The contribution that teachers make towards this kind of socialisation is especially worrisome. Trained teachers are expected to be aware of the wider aims of education; indeed, aims like 'development of the child's total personality' are the shibboleths of teacher training institutions everywhere in the country. It appears that teachers feel they can do little to pursue such lofty aims in any realistic sense under the harsh circumstances created by factors like excessively large classes, a heavy syllabus, difficult textbooks, and so on. Moreover, majority of them neither know nor have the necessary skills to realise the goals of education. The recommended pupil-teacher ratio of forty to one is now more an exception than a norm, and in many parts of the country it is customary to have sixty to eighty students in one class. The Committee learnt that in many states senior secondary classes often have one hundred or more students, many of them spilling into the corridor. In the national capital, many 'model' secondary schools, Central Schools, and several elite 'public' schools have classes, including primary classes, with more than sixty students.

This kind of class-size understandably generates a feeling of helplessness among teachers, but why must teachers feel helpless in the face of curriculum-related problems such as heavy syllabi, poorly produced textbooks, etc.? Why don't they act in more vocal ways and involve themselves in curriculum reform? Apart from the fact that there are very few forums encouraging curriculum inquiry and reform in any systematic manner, it seems to be an entrenched attitude among teachers to regard all decisions about curriculum and textbooks as the responsibility of 'authorities'. The fact is that while the teachers' involvement in the preparation of syllabi and textbooks is verbalised as a matter of principle, in practice it takes the shape of token involvement of a handful of teachers. Most teachers have reason, therefore, to think that they have little to say about the changes made from time to time in syllabi and textbooks. Even in such extreme cases where a textbook has a factual mistake, no complaints are made by teachers asking for correction of error. There is no established procedure or official forum to mobilise teacher vigilance and participation in curriculum improvement. On the contrary, there are cases where an individual teacher who complained about an error in a state-published textbook, was taken to task. Even if such cases can be described as rare or exceptionally unfortunate, they explain why the majority of teachers intuitively feel that it is not their business to critically examine the syllabus and texts they teach.

3. Examination System

Much has been written by various official committees on the ills of our examination system. The major, well-understood defect of the examination system is that it focuses on children's ability to reproduce information to the exclusion of the ability to apply concepts and information on unfamiliar, new problems, or simply to think.

The public examinations taken after Classes X and XII have assumed the importance of major events which have a set character or culture of their own. The awe they generate, the responses they trigger, and the kind of preparation they demand have all got so entrenched into the social lore that minor improvements in the style of question papers do not make difference to the dominant influence that the examination system has on the processes of learning and teaching. The influence is so strong that schools start holding a formal written examination several years prior to Class X indeed, in the primary classes in many parts of the country. And children receive the message almost as soon as they start attending school that the only thing which matters here is one's performance in the examination.

Both the teacher and the parents constantly reinforce the fear of examination and the need to prepare for it in the only manner that seems practical, namely, by memorising a whole lot of information from the textbooks and guidebooks. Educated parents, who have themselves gone through examinations, and the uneducated parents, whose knowledge of the examination system is based on social lore, share the belief that what really matters in education is the score one gets in the final examination. This belief is undoubtedly rooted in social or market reality. Percentage of marks obtained in the high school, higher secondary, or BA/B.Sc examinations is what ultimately matters in determining a student's chance of being called for an interview for admission to a university or for employment. Since the examination score is what a candidate carries with him or her as the key authoritative record of school or college performance, higher level institutions or employing agencies understandably rely on it. It is a process in which no beginning or end can be meaningfully established. Changing the system of examination in a structural or even in a merely procedural sense does not require that a source outcome or cause-effect relationship be established; yet, the examination system goes on, apparently with the help of energies or rationales located in the system of education itself.

4. Textbook as the 'Truth'

The pervasive effects of the examination system can be seen in the style and content of textbooks, and not just guidebooks which are specifically manufactured to help children pass an examination. If 'facts' or 'information' constitute the main burden of an examination, the same is true of textbooks. Barring exceptions, our textbooks appear to have been written primarily to convey information or 'facts', rather than to make children think and explore. Over the years some attempts have been made to incorporate a certain amount of reflective writing in textbooks. Such writing is so exceptional that its examples can be spotted and named without difficulty. 'How leaves are designed' in a Class VIII textbook is one such piece of writing*. It stands out from among the thousands of pages of textbooks in different subjects that our teachers and children have to go through painstakingly so that they can retain the information recorded in those pages in a highly compressed, usually abstruse manner. The more common style used in the textbooks is exemplified by passages of the following kind:**

The term pH is defined as the negative logarithm to the base 10 of the hydrogen ion concentration expressed in gram ions per litre or moles per litre. (Class X)

* Class VIII science textbook prepared by NCERT.

** We have decided to cite such examples without giving a reference in order to avoid the impression that we are criticising certain specific titles, authors, publishers or organisations. Our aim is to highlight certain common tendencies in the style of textbook writing.

Fatty acids are slowly hydrolysed during digestion in the small intestine to form glycerol and fatty acids

through the enzyme action of lipase which is secreted by the pancreas. (Class X)

We find that while dividing a decimal by a multiple of 10,000 or 1,000, we first move the decimal point to

the left as many places as there are zeros in the number and then divide the resulting decimal by the second

factor of the divisor.(Class V)

The problem of readability in textbooks becomes grim in the context of a system which often leaves the child with no resource other than the prescribed textbook. The extent to which the child can rely on a teacher to elucidate tersely written text material is dependent on the quality of teachers, their training, and their accountability. From what impression the Committee could form about these aspects of the system, it seems valid to say that the child is very often helpless in the face of a style of teaching that is far from being interactive, let alone the absence or irregular presence of teachers. (And we are not saying that the teachers alone are responsible for the kind of teaching that takes place daily in lakhs of classrooms that have hardly any equipment and often not even a proper means of ventilation or lighting.) Under the circumstances that are widely prevalent in our country, a child is more likely than not to mug up the definition of 'pH' quoted above without grasping it. And mugging does get the child through the examination!

Textbooks and guidebooks form a right nexus. In some parts of the country children are compelled to buy the guidebook (or 'key') along with the textbook. The economic and business aspects of this pairing apart, the academic function of the textbook has become quite dubious indeed. It is not perceived as one of the resources for learning about a subject, but as the only authoritative resource. This kind of sanctity distorts what useful purpose the textbook could serve. Teachers see it as a body of 'truths' which children must learn by heart. This perception and urge to 'cover' the chapters of the prescribed textbook, turn all knowledge into a load to be borne by the child's memory.

The distance between the child's everyday life and the content of the textbook further accentuates the transformation of knowledge into a load. We are not talking here about advanced science or mathematics, but about elementary science, social studies, language and arithmetic. Textbooks treat these subjects in a manner that leads to alienation of knowledge from the child's world. This tragic phenomenon takes different forms in different subjects. In the natural sciences, it takes the form of esotericisation of the subject. In the social sciences it becomes manifest in the coating of every inquiry in didacticism, suggestive of one preferred answer to every

question. A common source of alienation of subject-matter from the children's perspective and life is the presentation of the life-style and world view of the urban well-off class. This life-style is characterised by access to concrete housing, modern kitchens, electrical gadgets, and so on. Of course there is nothing 'wrong' with this life-style; but the symbolisation of this life-style in every illustration and description that concerns a child's home life alienates millions of children who live in houses with traditional kitchens, or with no separate kitchens. Objects of daily use in common Indian homes, such as a broom or clay pitcher, are seldom seen in textbooks. One wonders whether the common Indian broom, which could be a versatile resource for learning about the social and physical environment, is perceived by our textbook writers and illustrators with a sense of stigma or as a symbol of backwardness. Or could it be that it is simply too common to be seen as being of any use in an educational material? Neither of the two guesses is totally irrelevant in view of the complete absence of common objects of ordinary Indian life in the world depicted in textbooks.

The most common message that children get from the textbooks is that the life ordinary people live is 'wrong' or irrational. And this kind of didactic rejection does not apply to non-middle class life alone. All simple joys of childhood are also criticised. No better example of this can be given than the message conveyed in a Class V exercise which asks children to decide whether the statement 'Road is also a playground', is correct or wrong. The right response is that this statement is 'wrong', the message of the lesson being that playing on the street can be dangerous. This message is of course true in a normative sense, but it ignores the reality of the overwhelming majority of urban children who have no other space except the street to play. The moot point is not the scarcity of space, but rather the need to accept the universally valid fact that children enjoy playing on the street. This joy must be respected in a text written from a child-centred point of view. To argue that a respectful acknowledgement of this joy will amount to sanctioning carelessness, or to say that children must be warned about the risks of playing on the street is to trivialise the issue. Every child who plays on the street fully knows the dangers involved in it. Science textbooks need not waste valuable pages on such trivial preaching which is precisely what they do throughout the elementary classes in place of using these golden years of childhood to arouse curiosity about things and ideas.

5. Language Textbooks

We hardly need to assert that our textbooks are not written from the child's viewpoint. Neither the mode of communication, nor the selection of objects depicted, nor the language conveys the centrality of the child in the world constructed by the text. This last dimension of language deserves some elaboration. The vocabulary and syntax used in the textbooks in the Hindi region were critically referred to by a number of individuals and groups whom the Committee met during the course of its deliberations. Not just the textbooks used for the teaching of the natural and the social sciences, but even the textbook used for the teaching of the mother tongue are written in such stylised diction and sentence-structure, that children cannot be

expected to see the language used in them as their own. Words, expressions and nuances commonly used by children and others in their milieu are all absent from textbooks. So is humour. An artificial, sophisticated style dominates textbook lessons, reinforcing the tradition of distancing knowledge from life. The language used in textbooks, thus, deepens the sense of 'burden' attached to all school-related knowledge.

6. Observation Discouraged

A highly disturbing tendency we discovered in text writing, which exacerbates the problem we are discussing, is that of treating pictures as substitutes for experience. We found textbooks asking children to observe a picture of the object under study rather than asking children and the teacher to go out and observe the object itself in nature. For example, a Class V science text says : 'Look at the picture of a cactus plant. Observe the thick green structure...' Such an instruction pre-empts what motivation there may be in a teacher or child to bring an actual cactus plant to the class or to grow one. The most painful example of this phenomenon brought to our attention was one in which a private publisher claimed that he had made the teacher's task 'easier' by turning an official 'Teacher's Guide', which suggests that the teacher should take children outside the school and identify some common birds, into a text where the pictures of all the common birds with their names were provided for ready use. This case is especially painful as it shows how even a specific instruction given in a Teacher's Guide (Teacher's Guides are themselves rare; and in subjects in which they have been prepared in certain states, circulation has not been satisfactorily looked after) to encourage teachers to extend the lesson beyond the four walls of the classroom is co-opted within the dominant, traditional approach of teaching everything verbally from a textbook. Over the recent years, some textbooks have adopted the vocabulary of observation and exploration or discovery as a necessary part of science teaching, but even here, virtually all commands for observation conclude with statements about what will be seen if an observation is actually made, thereby making it unnecessary for the teacher and children to find an object and actually observe it.

7. Structure of Syllabus

The absence of the child's viewpoint is also reflected in the organisation of syllabi in different subjects. We received a large number of complaints from parents as well as teachers that the content of syllabi lacks an overall organisation or coherence. Gaps in the syllabi between the lower and the higher secondary stages are as common as repetitions of the same content. These weaknesses of organisation apparently lead to memorisation and poor comprehension, both exacerbating the sense of curriculum load. Gaps between the secondary and the senior secondary stages seem to be glaring in the science syllabi. When students come to Class XI, they often find themselves without a clue even if they have done well in Class X. The level of abstraction attempted in the senior secondary stage science syllabi and textbooks, especially the physics textbooks, represents a jump in many topics. Apparently, those preparing the senior secondary syllabi and texts lacked adequate familiarity with the syllabi and texts used in the earlier classes. In fact, they had no

occasion to interact with the persons involved in the preparation of syllabi and textbooks for secondary classes (IX and X).

Repetitions of concepts and information also leads to boredom and a sense of load. The need to repeat is rooted in the flawed structure of syllabi. In the primary classes, ideas and information are presented in a synoptic manner, making the text look deceptively simple. In the later classes, the same ideas are repeated, with some elaboration which does not prevent the child from viewing the ideas as trivialised by repetition. In the study of nutrition and health, for example, virtually the same ideas and information are given in the syllabi and texts of Classes III, IV, V, VII and X. Even the questions given at the end of the lessons in the texts are almost of the same kind. Apparently, the structure of syllabi is not carefully thought out. Indeed, our Committee was told by senior experts, who have been involved in syllabus and textbook preparation, that experts working on the syllabus of different levels (secondary and senior secondary) had no contact with each other. Reference to such procedural lapses, however, is not necessary to explain the tendency towards repetition that is embedded in the structure of the syllabus and has been reinforced by tradition.

History is the most clear case in point. Although it forms one part of the subject called social sciences, it offers a prime example of curriculum load. Despite many changes that have come about in the style of history texts, the history syllabus continues to be a frustrating and meaningless experience for children. The aim of teaching history is defeated because children are not enabled to relate to their own heritage. Traditionally, it requires children to form an overall picture of the 'whole' of India's known history, from ancient to modern times, during the three years from Classes VI to VIII. Since the texts for these classes are required to cover such a vast span, the density of these texts becomes extremely high which means that historical time is greatly compressed, i.e. a few sentences are deemed to 'cover' several decades. The synoptic style forces the child into 'accepting' whatever is narrated. There aren't enough details that a child could use to work out some kind of argument or interpretation, but the sheer volume of text (which is supposed to 'cover' 'all' of India's history in three years) forces the child (and the teacher) to 'take in' as much text as possible without 'wasting' time in studying or constructing an argument.

This common problem of the history syllabus apart, we found that the content of the history syllabus in certain states was conceived as a densely packed box of informations. The syllabus of history in West Bengal illustrates this tendency in tragically exaggerated proportions. For example in Class VIII, children are required to learn 17 topics in all which are :

1. Modern age;
2. Renaissance in Europe;
3. Europeans widen the world;
4. Reformation in Europe;

5. 5. The English Revolution in the 17th century;
6. India;
7. Foundation and growth of the British power in India till 1857 in short narrative form;
8. World in the 18th century;
9. Europe since 1815;
10. (a) Developments in China till 1911;
- (b) Rise of Japan-as a great power till 1914;
11. India under the crown 1858-1914;
12. The First World War;
13. The Bolshevik Revolution;
14. Europe 1919-1939;
15. The Second World War;
16. India 1919-1947;
17. (a) Revolution in China 1911-1949;
- (b) Revolution in South East Asia after 1945;
- (c) Spread of nationalism and unrest in subject countries during the Second World War.

The entire syllabus is to be covered in 135 pages of a text, according to the instruction given in the syllabus itself. Apparently, the syllabus makers believe that compression of information in terms of page-space does not affect the readability, let alone comprehensibility, of a text.

8. Teaching Everything

The problem of densely packed syllabi like this one cuts across disciplines. In geography, it takes the form of all the continents being 'covered' under regional geography between Classes VI and VIII. In mathematics and the natural sciences, the packing of details makes any kind of learning with understanding, leave alone enjoyment virtually impossible. Numerous examples could be given from these disciplines to illustrate the problem. In *one* page of a Class VII science textbook we find all these items 'covered': definition of time period, how to find the number of oscillations per second, definition of frequency, 'Hertz' unit of frequency, the idea that vibrations have amplitude and frequency, definitions of these, the concept of sound as vibration, loudness and pitch, and finally frequency/pitch and its relation to speed of rotation and tension. We are not citing this example as a specific case to be looked into, but as evidence of a deeply rooted tendency, rather an ideology, which impels syllabus and textbook planners to include 'everything' without any regard for children's ability at different ages to learn and the time available in an average school for teaching a subject. Class XI and XII textbooks of science, prepared recently with a view apparently to implement the National Education Policy, have been widely criticised on these scores. Children studying science subjects have been asked by their teachers to look for private tutors, the rationale being that there may not be enough time in the class to cover the syllabus, and some

of the syllabus being beyond the capacities of the teacher. The terse content of these texts was apparently edited and reviewed in some haste, we were informed, due to constraints of time while sending the manuscripts for publication. Perhaps it can be argued that these textbooks are liked by the highly motivated and the brightest among the students and teachers. If this indeed is the case, it gives all the more reason to worry about the fate of the overwhelming majority of children studying in ordinary schools.

In mathematics, the situation seems to be grim right from the start of the child's school career. Far too many abstractions are introduced all at once with scant attention paid to well-known facts about development of mathematical thinking in children. To begin with, children are expected to handle arithmetical operations on a very large numbers early. In Class I, they are supposed to go up to 100 (compared to this a British child in this class spends the whole year working with numbers up to 20), in Class II up to 1000, in Class III, up to 10,000, in Class IV up to a million, and in Class V up to a crore. Even though the conservation of volume and weight are known to emerge in the child's mind after the conservation of length is fully established, all three are introduced simultaneously (usually in one unit of study) at the young age of seven or eight years, with the expectation that children will compute with standard units. Concrete operational thought, which is characteristic of elementary school children, demands manipulation of objects and activities using a variety of materials (to enable 'elaboration' of a concept, i.e. its dislocation from any one material or object). Such activities become impossible to organise under a curriculum which progresses so swiftly from concept to concept. Also, children of this stage find proportional reasoning difficult yet percentage and ratio are introduced in Classes IV and V. In the middle and higher classes, the tendency to follow the logic of the discipline of mathematics rather than psychology of learning as the basis of the curriculum becomes even more dominant. Mathematics, thus, acquires the image of an esoteric discipline which has little application in the real life of the child.

9. Starting Early

The general problems of curriculum conceptualisation that we have discussed in this part of our report can all be seen reflected in the emerging pre-school sector of the education system. Despite official stipulations that no textbooks be used at this stage, pre-school teachers and parents in the urban centre are feeling 'compelled' to burden the young child with textbooks and the formal learning they represent. The sense of compulsion comes from a widespread feeling that unless academic training of a child starts early, he or she cannot cope with the fast-paced pedagogy and the competitive ethos of the later school years. The pernicious grip of this false argument manifests itself in absurd, and of course deeply harmful, practices in pre-schools and primary schools, such as early emphasis on shapely drawing, writing, and memorising information. Intrinsic motivation and the child's natural abilities are being smothered at a scale so vast that it cannot be correctly estimated. Our national commitment to the development of human resource is daily challenged in our nurseries and primary schools.

10. Not Just an Urban Problem

The problem we have tried to identify in this part of the report is not confined to urban areas as some people think. It is deeply relevant to children's education in rural India although there, more basic problems — such as abysmally poor condition of schools, absenteeism among teachers, etc. may cloud the problem of curriculum load. In our view, the problem of a high drop-out rate, which has rightly preoccupied our policy-makers for a long time, has one of its origins in the curriculum scenario we have portrayed. A curriculum policy that takes away the elements of joy and inquiry from learning obviously contributes to the rate at which children leave school in the early years, undoubtedly under the force of economic and social circumstances. As we have indicated earlier, symbolic tilt towards an urban, middle class way of life in textbooks can also be expected to make the rural child's association with his or her experience at school thin and brittle. Quality of teachers and the equipment available to them also make an impact on the tenuous and fragile link that the first-generation learner in many parts of rural India tries to establish with the system of education.